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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Allen, et al.)	Examiner: Alvo, M.
)	
Application No.: 09/772,282)	Art Unit: 1731
)	
Filed: January 29, 2001)	Our Account No.: 04-1403
)	
Confirmation No.: 9284)	Our Customer ID: 22827
)	
For: Method And Apparatus For)	
Imaging A Paper Web)	

REQUEST FOR REINSTATEMENT OF APPEAL
AND SUPPLEMENTAL APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner of Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required by 37 CFR § 41.37, Appellants have herewith filed a Notice of Appeal in the above-captioned case and hereby request reinstatement of the Appeal for which an Appeal Brief was filed September 25, 2004 and a Revised Appeal Brief was filed June 10, 2005.

Also as required by the present Office Action dated July 29, 2005, Appellants have submitted a Supplemental Appeal Brief in accordance with 37 CFR § 41.37(c) and MPEP § 1204.01 (rev. 3, August 2005).

Appellants respectfully request that previously paid appeal fees for filing the Notice of Appeal of August 11, 2004, the Appeal Brief of September 25, 2004, and the Revised Appeal Brief of June 10, 2005, be applied to this Request for Reinstatement of

the Appeal and Supplemental Appeal Brief. Appellants respectfully submit that only any difference in appeal fees is due since submission of the September 25, 2004, Appeal Brief. However, if any additional fee or extension of time is required to obtain entry of this Supplemental Appeal Brief and accompanying Notice of Appeal, Appellants hereby petition the Commissioner to grant any necessary time extension, and the undersigned hereby authorizes the Commissioner to pay from Deposit Account No. 04-1403 any such fee not submitted herewith.

SUPPLEMENTAL APPEAL BRIEF

1. REAL PARTY IN INTEREST.

By assignment recorded on March 5, 2002, at reel 012674, frame 0018, in the United States Patent and Trademark Office, the real party in interest is Kimberly-Clark Worldwide, Inc.

2. RELATED APPEALS AND INTERFERENCES.

Appellants are not aware of any other appeals or interferences that will directly affect or have a bearing on the Board's decision in this appeal other than Appellants' Appeal for which the Appeal Brief of September 25, 2004, and the Revised Appeal Brief of June 10, 2005, were filed, both of which are incorporated herein by reference for all intents and purposes.

3. STATUS OF CLAIMS.

Claims 1-27 are pending in the present application, including independent Claims 1, 12 and 26. Claims 1-27 involved in this appeal are listed in the attached Appendix.

Appellants' Application was filed on January 29, 2001, with Claims 1-22. On May 10, 2002, an Amendment was filed amending certain claims and adding new Claims 23-27 in response to an Office Action dated December 13, 2001.

A Final Office Action was mailed July 27, 2004, twice/finally rejecting Claims 1-27 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Additionally, Claims 1-4 and 7-9 were rejected in the Final Office Action under 35 U.S.C. §103(a) as allegedly obvious over Parker (U.S. Pat. No. 5,745,365) with or without Houston et al. (U.S. Pat. No. 4,931,657) or Rule, Jr. (U.S. Pat.

No. 6,129,817) or Bialkowski (U.S. Pat. No. 4,500,968) with or without SHERLOCK® (Appellants' specification, p. 15, ll. 5-8); Claim 5 was rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Parker as applied to Claim 1 above, and further in view of Rule, Jr.; Claim 5 was further rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Parker with or without Houston et al. or Bialkowski as applied to Claim 1 above, and in further view of Rule, Jr.; Claims 6 and 10-25 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Parker with or without Houston et al. or Rule, Jr. or Bialkowski as applied to Claim 1 above, and further in view of allegedly Admitted Prior Art (Appellants' specification, p. 14, ll. 8-13, p. 11, ll. 4-6, paragraph bridging pp. 9-10, p. 10, ll. 9-21, and Request for Reconsideration, filed December 18, 2002, pp. 1-2); Claims 26-27 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Parker as applied to Claim 1 above, and further in view of Bialkowski; and Claims 26-27 were further rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Parker and Houston et al. or Rule, Jr. as applied to Claim 1 above, and further in view of Bialkowski.

Appellants filed a Notice of Appeal on August 11, 2004, an Appeal Brief on September 23, 2004, and a Revised Appeal Brief on June 10, 2005, merely to conform the Appeal Brief to the new format required by 37 CFR § 41.37(c).

An Office Action was mailed July 29, 2005, reopening prosecution and rejecting Claims 1-27 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ischdonat (U.S. Pat. No. 6,743,337), Callendar et al. (U.S. Pat. No. 6,053,040) and Shields et al. (U.S. Pat. No. 5,899,959), and if necessary in view of Bernié et al. (U.S. Pat. No. 6,301,373) and Yakabe et al. et al. (U.S. Pat. No. 5,393,378).

Accordingly, Appellants are appealing Claims 1-27 as invited by the present

Office Action and in accordance with 37 CFR § 41.37(c) and MPEP § 1204.01 (rev. 3, August 2005)

4. STATUS OF AMENDMENTS.

All amendments filed by Appellants have been entered into the record.

5. SUMMARY OF CLAIMED SUBJECT MATTER.

The present invention is generally directed to methods of monitoring web formation in a web forming process. The web can be, for instance, a paper product. As stated in the present specification on page 6, the term “formation” refers to the uniformity of distribution of fibers in the sheet that is formed.

Claims 1-11 and 23 are directed to a method of monitoring web formation including the steps of depositing a slurry of fibers upon a forming fabric **32**. A light is emitted from a light source **28, 29** onto a first side of the wet web. The light reflected from the first side of the web is fed to a camera **27** that forms a pattern of reflected light. A visual image is then formed of the wet web corresponding to the pattern of the reflected light (see Fig. 1, page 7, lines 15-19 and Fig. 2, page 8, lines 4-10 of Appellants’ specification).

Claims 12-22 and 24-25 are directed to another embodiment of the invention in which a method for measuring paper formation in real time is provided. The method includes a rotating forming fabric having an upper and lower surface. A paper slurry is deposited upon the upper surface of the moving forming fabric to establish a wet paper web. The wet paper web moves at a speed of at least about 4000 feet per minute. Light is transmitted from a light source **28, 29** upon the surface of the wet paper web. Light reflects from the surface of the wet paper web to a camera **27**. An image is formed that

corresponds to the pattern of the reflected light (see page 4 lines 15-24).

Claims 26-27 are directed to a method of measuring formation in a web forming process including the steps of depositing a slurry of fibers upon a forming fabric 32. A light is emitted from a light source 28, 29 onto a first side of the wet web. The light reflected from the first side of the web is fed to a camera 27 that forms a pattern of reflected light. A visual image is then formed of the wet web corresponding to the pattern of the reflected light (see Fig. 1 page 7 lines 15-19 and Fig. 2, page 8, lines 4-10 of the specification). Based upon the formed visual image, adjusting one or more web making parameters in order to improve the web formation (see page 8 line 27 to page 9 line 5 of the Specification).

Through the process of the present invention, a true two-dimensional, optical image of the formed web can be produced, stored and manipulated very early in the paper making process, prior to other process steps, which can influence formation measurements. For instance, an operator can view the formed image prior to web completion and adjust various parameters in the web making system for improving the formation of the web.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-27 stand rejected under 35 U.S.C. §103(a), as allegedly unpatentable over Ischdonat, Callendar et al. and Shields et al., and if necessary, in view of Bernié et al. and Yakabe et al.

7. ARGUMENT.

Claims 1-27 are not obvious under 35 U.S.C. §103(a) in view of Ischdonat,

Callendar et al. and Shields et al. and if necessary if view of Bernié et al. and Yakabe et al.

To establish a *prima facie* case of obviousness there must be a reasonable expectation of success in combining references, and the combination must include all limitations of the claimed inventions. Moreover, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP § 2143.01 (8th ed., August 2001).

A. Ischdonat, Callendar et al. and Shields et al., and if necessary, Bernié et al. and Yakabe et al. et al., do not teach or suggest all elements of the inventions of Claims 1-11; Claims 12-22, 24-25; and Claims 23, 26-27.

Claim 1, for instance, recites a method of measuring paper formation or distribution in a papermaking process, comprising: (a) providing a forming fabric; (b) depositing a paper slurry upon the forming fabric to form a wet web; (c) transmitting light from a light source upon a first side of the wet web; (d) reflecting the light from the first side of the wet web to a camera, thereby forming a pattern of reflected light; (e) forming a visual image of the wet web corresponding to the pattern of the reflected light; and (f) utilizing the pattern of reflected light to which the visual image corresponds to control paper formation in the wet web. The base reference Ischdonat, with or without cited secondary references, does not disclose or suggest each and every step recited by Claim 1.

In contrast to Claim 1, Ischdonat at least does not disclose or suggest a camera,

which uses a pattern of reflected light to which a visual image corresponds to control paper formation in a wet web. Ischdonat is directed to infrared sensing of an emergent element 32 on the back end of fiber optic wires 16 (see e.g., Fig. 5). More specifically, the photodiode detector 14 of the cited reference senses the emergent element 32 and feeds the resulting IR data to a computer. See col. 7, lines 60-67, col. 8, lines 13-20, col. 9, lines 49-54, and col. 10, lines 42-46 of Ischdonat.

Ischdonat is aimed clearly at addressing a shortcoming inherent in a conventional paper machine scanner. The conventional paper machine scanner slowly traverses the width of a machine while measuring properties of a paper web such as sheet moisture and basis weight (i.e. grammage). Since about the mid-1970's, these scanners have been standard equipment on most paper machines. Ischdonat recognizes that the traversing head scanner provides a non-representative, cross machine direction (CMD) profile of the paper web because, at the typical slow traverse speeds of the scanner head (e.g., 1 m/sec), the CMD profile does not represent a true picture of the fast moving web. The web typically moves in a machine direction (MD) at 17-35 m/sec such that the scanner head provides a non-representative, zigzag representation of the web. Ischdonat is thus directed to replacing the scanner function with a device that does not traverse in order to provide a truer representation of the CMD profile of the sheet.

As introduced above, Ischdonat does not teach a camera image, but instead uses the emergent element. This is precisely because Ischdonat is teaching that the measurement methods and function of existing, commercially available traversing scanner heads can be replaced by a plurality of stationary emergent elements distributed across the CMD of the paper machine. Use by Ischdonat of electromagnetic radiation in

the IR range emphasizes this point. IR measurement is not imaging at all but simply moisture measurement of the web. Appellants respectfully submit that the skilled artist would clearly read Ischdonat as an improvement to or a possible replacement for existing scanning head technology useful for making judgments about CMD and MD profiles and is not a reference teaching high resolution camera information about a discreet point in a forming sheet.

Appellants respectfully submit based on the foregoing discussion that the Ischdonat device directed to emergent elements is fundamentally different from the camera method recited by Claim 1. Appellants' take this opportunity to respectfully direct attention to the similarity of the device of Ischdonat to that of Parker as discussed in Appellants' Appeal Brief of September 25, 2004, and the Revised Appeal Brief of June 10, 2005, both of which are incorporated herein by reference. Appellants respectfully submit that the Ischdonat reference, like Parker, is an insufficient reference and should be withdrawn.

Callendar does not remedy the deficiencies of Ischdonat. The Office Action states that Callendar teaches measuring properties of a wet web via direct imaging of the web and then controlling those properties of the web based on the imaging. To the contrary, Callendar expressly does not teach web formation but is directed to finding the distinction between the wet and dry lines. More particularly, Callendar is directed to discerning where a wet line ends and a dry line begins and to making a determination of how rapidly a paper web is draining under a particular set of conditions. This wet line distinction can easily be made with the human eye, which is the way paper makers have operated for years, and which Callendar is simply automating. Callendar is not directed

to a camera, which uses a pattern of reflected light to which a visual image corresponds to control paper formation in a wet web.

Shields shines its strobe light from a light plate 94 on an opposing side of its web 22 from its camera 24, and cannot cure Ischdonat to use a camera to form a pattern of reflected light to which a visual image corresponds to control paper formation in a wet web. Although the Office Action states on page 4 that Shields (as well as Callendar) teaches taking the measurements on a forming wire, the skilled artist in the art of paper making will recognize that a paper making wire is thick and opaque, and it would be unreasonable to image the relatively thin paper web by illuminating it from the backside (i.e. through) the forming wire. Thus, if there was a paper making wire between the light source of web, the fabric and the condition of the fabric including the amount of moisture carried in the interstices, as well as contamination (e.g. pitch) that is typical would also impact the amount of light transmitted. Shields, therefore, is clearly directed to imaging an unsupported web using transmitted light on the opposite of the web and not to using a camera to form a pattern of reflected light to which a visual image corresponds to control paper formation in a wet web.

Yakabe et al. and Bernié et al. also fail to cure Ischdonat, with or without Shields or Callendar. Specifically, Yakabe et al. teaches transmitting its light source through an area of paper, and Bernié et al. is directed to a light transmission technique to generate maps of local opacity of paper to approximate local grammage maps. Further, the non-image based analysis of Bernié et al. teaches away from the Claim 1. Bernié et al. and Yakabe et al. are also similar to Shields in that neither reference teaches a camera for forming a pattern of reflected light to which a visual image corresponds to control paper

formation in a wet web.

Based on the foregoing discussion, Appellants respectfully submit that the combination of references fails to include all limitations of the invention recited by Claim 1; therefore, the Office Action has failed to make out a *prima facie* case of obviousness as to Claim 1 and Appellants respectfully request withdrawal of the rejection under 35 U.S.C. §103(a) and allowance of Claim 1. Dependent Claims 2-11 and 23 depend directly or indirectly from independent Claim 1. If an independent claim is non-obvious under 35 U.S.C. §103(a), than any claim depending therefrom is non-obvious. In re Fine, F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir.1988).

Appellants respectfully submit that Claim 12 and its dependent claims 13-22 and 24-25 are patentable over the base reference Ischdonat, with or without cited secondary references. Claim 12 recites a method for measuring paper formation in real time on a papermaking process, comprising: (a) providing a rotating forming fabric having an upper and lower surface; (b) depositing a paper slurry upon the upper surface of the forming fabric to establish a wet paper web, the wet paper web moving at a speed of at least about 4000 feet per minute; (c) transmitting light from a light source upon the upper surface of the wet paper web; (d) reflecting light from the upper surface of the wet paper web to a camera thereby forming a pattern of reflected light; (e) forming a visual image of the wet paper web corresponding to the pattern of the reflected light; and (f) utilizing the pattern of reflected light to which the visual image corresponds to measure paper formation in the wet web. The cited combination does not disclose or suggest each and every step recited by Claim 12.

As discussed above, Ischdonat is directed to IR emergent elements and at least

does not teach a wet paper web moving at least about 4000 feet per minute; reflecting light from an upper surface of the wet paper web to a camera thereby forming a pattern of reflected light; forming a visual image of the wet paper web corresponding to the pattern of the reflected light; and utilizing the pattern of reflected light to which the visual image corresponds to measure paper formation in the wet web.

None of the secondary references, alone or in combination, cures the numerous deficiencies of Ischdonat for at least the reasons discussed above. Thus, Appellants respectfully submit that Claim 12 and its dependent Claims 13-22 and 24-25 is patentable over the references of record. In re Fine, F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir.1988).

Appellants respectfully submit that Claim 26 and its dependent Claim 27 are patentable over the base reference Ischdonat, with or without cited secondary references. Claim 26 recites a method of measuring formation or distribution in a web forming process comprising the steps of: providing a forming fabric; depositing a slurry of fibers upon the forming fabric to form a wet web; emitting light from a light source upon a first side of the wet web; detecting reflected light from the wet web by a camera positioned in communication with the first side of the web, the camera forming a pattern of reflected light; forming a visual image of the wet web corresponding to the pattern of the reflected light; and based upon the formed visual image, adjusting one or more web making parameters in order to improve the web formation.

As discussed above, Ischdonat is directed to IR emergent elements and does not disclose or suggest each and every step recited by Claim 26. None of the secondary references, alone or in combination, cures the numerous deficiencies of Ischdonat for at least the reasons discussed above. Thus, Appellants respectfully submit that Claim 26

and its dependent Claim 27 are patentable over the references of record. In re Fine, F.2d 1071, 5 U.S.P.Q. 2d 1596 (Fed. Cir.1988).

Based on the foregoing discussion, Appellants respectfully submit that the combination of references fails to include all limitations of the inventions recited by Claims 1-11; Claims 12-22, 24-25; and Claims 23, 26-27; therefore, the Office Action has failed to make out a *prima facie* case of obviousness.

B. In the alternative, the Office Action fails to provide the required suggestion or motivation to combine Ischdonat, Callendar et al., and Shields et al., and if necessary, Bernié et al. and Yakabe et al.

The mere fact that the prior art could be modified to achieve a claimed invention does not make the claim obvious. In re Laskowski, 871 F.2d 115, 10 U.S.P.Q. 2d 1397 (Fed. Cir. 1989); In re Mills, 916 F.2d 680, 16 U.S.P.Q. 2d 1430 (Fed. Cir. 1990). The question of obviousness is not simply a question of finding references that, if combined, would include the necessary limitations. Instead, the Federal Circuit has consistently held that the question of obviousness requires a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 60 U.S.P.Q. 2d 1001 (Fed. Cir. 2001) ("the central question is whether there is reason to combine references"). See also In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984) (for a claim to be obvious in view of a modification of prior art, there must be some suggestion that it would be desirable to make such a modification) and In re Denbiczak, 175 F.3d 994, 50 U.S.P.Q. 2d 1614 (Fed. Cir. 1999) ("actual evidence" of a suggestion, teaching, or motivation to combine references must be provided, and must be "clear and particular;" broad

conclusory statements standing alone are not evidence). In the present case, the Examiner has not pointed to any qualifying suggestion or appropriate source of motivation to modify Ischdonat with Callendar et al. and Shields et al., and if necessary with Bernié et al. and Yakabe et al. to render Appellants' inventions obvious.

1. The Office Action fails to recognize that a principle of operation of Ischdonat cannot be changed by Callendar et al. and Shields et al., and if necessary, Bernié et al. and Yakabe et al.

The Office Action ignores that *prima facie* obviousness is not made out where a proposed modification or combination of prior art would change the principle of operation of the prior art invention if modified. See In re Ratti, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959). In the present case, changing the photodiodes of Ischdonat, which are designed to obtain IR signals to determine moisture content, and replacing them with cameras to form visual images, is a substantial redesign of the prior art elements and a change in the basic principle under which Ischdonat was designed to operate. 270 F.2d at 813. See also MPEP § 2143.01, page 2100-124 (8th ed., August 2001).

With respect to Callendar et al., the principal of operation of Ischdonat would be completely changed by replacing its photodiodes with the equipment of Callendar et al. Appellants respectfully submit that a person of ordinary skill in the art would not have been motivated to so change Ischdonat. Additionally, Appellants' take this opportunity to respectfully direct attention to the similarity of the device of Callendar et al. to that of Bialkowski as discussed in Appellants' Appeal Brief of September 25, 2004, and the Revised Appeal Brief of June 10, 2005, both of which are incorporated herein by

reference. Note that both secondary references are for determining the location of a wet line of a paper web, and neither discloses forming a visual image with reflected light to control paper formation in a wet web. Therefore, if Ischdonat were completely, impermissibly reconstructed with the equipment of Callendar et al., Ischdonat would be even further removed from its original principle of operation.

As noted above, Shields shines its light through an opposite side 60 of web 22. Even if the light of Shields were adapted to Ischdonat by replacing the photodiodes of Ischdonat, this could only be accomplished, as with Callendar et al. above, by completely changing the principle of operation of Ischdonat and vice versa. Appellants respectfully submit that a person of ordinary skill in the art would not have been motivated to so change Ischdonat.

With respect to Bernié et al., which teaches shining a light through a paper to determine areas of opacity of the paper, Appellants respectfully submit that Bernié et al. applied to Ischdonat would completely change the principle of operation by removing the photodiodes of Ischdonat. Appellants respectfully submit that a person of ordinary skill in the art would not have been motivated to so change Ischdonat. Moreover, Appellants respectfully submit that the non-imaged based analysis of Bernié et al. teaches away from the inventions of Claims 1-11; Claims 12-22, 24-25; and Claims 23, 26-27 and Bernié et al. should be removed as an insufficient reference.

With respect to Yakabe et al., as was the case with Callendar et al. above, the photodiodes of Ischdonat would have to be replaced with the equipment of Yakabe et al. and the light of Yakabe et al. would have to be reflected instead of shown through the paper. This would require a complete redesign of Ischdonat and of course, change its

principle of operation. Appellants respectfully submit that a person of ordinary skill in the art would not have been motivated to so change Ischdonat.

2. Even if the cited combination of references included all claim limitations, the multiple reference combination clearly evidences the unobviousness of Appellants' inventions and further, the Office Action uses impermissible hindsight afforded by Appellants' claimed inventions.

Appellants respectfully submit that by requiring a combination of five references to arrive at the inventions recited by Appellants' Claims 1-11; Claims 12-22, 24-25; and Claims 23, 26-27 is clear evidence of the unobviousness and patentability of Claims 1-11; Claims 12-22, 24-25; and Claims 23, 26-27 over the cited combination of several references.

Appellants respectfully submit that there is an absence of teaching in the prior art regarding the inventions recited in Claims 1-11; Claims 12-22, 24-25; and Claims 23, 26-27, and the Examiner is simply using Appellant's own disclosure against Appellants. Such hindsight reconstruction is not permitted. W.L. Gore & Assocs., Inc v. Garlock, Inc., 721 F.2d 1540, 1533, 220 U.S.P.Q. 303, 312-13 (Fed. Cir. 1983) (In making an obviousness determination, to give one of ordinary skill in the art knowledge of the invention, when no prior art references convey or suggest that knowledge, "is to fall victim to the insidious effect of a hindsight syndrome where that which only the inventor taught is used against the teacher.")

Absent Appellants' disclosure, there is simply no motivation for one skilled in the art to modify Ischdonat with the numerous secondary references to render Appellants'

claimed inventions obvious. The only place that the Examiner could have attained that motivation is through Appellants' own disclosure. Accordingly, the Examiner's case for obviousness based on these multiple references is supported solely by hindsight provided by Appellants' disclosure and is insufficient to render the claims unpatentable in view of 35 U.S.C. §103(a). In re Vaeck, 947 F.2d 488, 20 U.S.P.Q. 2d 1438 (Fed. Cir. 1991) (the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure). Thus, Appellants respectfully request removal of the rejection based on Ischdonat, Callendar et al., Shields et al., Bernié et al., and Yakabe et al. et al. and allowance of Claims 1-27.

CONCLUSION: *PRIMA FACIE* OBVIOUSNESS BASED ON ISCHDONAT WITH OR WITHOUT CITED SECONDARY REFERENCES HAS NOT BEEN ESTABLISHED.

As the Examiner has failed to make out a *prima facie* case against any of the Claims 1-27 by showing a reasonable motivation to combine the references of record without changing principles of their operation, Appellants respectfully submit that the rejection of the claims should be reversed, and that Claims 1-27 be allowed to issue in a United States Patent.

8. CLAIMS APPENDIX

See attached listing of pending claims involved in this Appeal.

9. EVIDENCE APPENDIX

Appellants do not rely on any evidence entered in this Appeal.

10. RELATED PROCEEDINGS APPENDIX

Appellants are not aware of any decision rendered by a court of the Board in any related appeals or interferences.

Respectfully submitted,

DORITY & MANNING, P.A.



Bernard S. Klosowski, Jr.
Reg. No. 47,710

Date:

10/31/05

P.O. Box 1449
Greenville, SC 29602-1449
(864) 271-1592
Facsimile (864) 233-7342

APPENDIX

(CLAIMS INVOLVED IN APPEAL)

1. A method of measuring paper formation or distribution in a papermaking process, comprising:

- (a) providing a forming fabric;
- (b) depositing a paper slurry upon the forming fabric to form a wet web;
- (c) transmitting light from a light source upon a first side of the wet web;
- (d) reflecting the light from the first side of the wet web to a camera, thereby forming a pattern of reflected light;
- (e) forming a visual image of the wet web corresponding to the pattern of the reflected light; and
- (f) utilizing the pattern of reflected light to which the visual image corresponds to control paper formation in the wet web.

2. The method of claim 1 further comprising the step of moving the wet web longitudinally through the light pathway to facilitate the impingement of light upon the surface of the wet web.

3. The method of claim 1 in which the light source comprises a light line.

4. The method of claim 1 in which there are at least two independent sources of light.

5. The method of claim 1 in which the step of forming an image further comprises receiving the reflected light in a line scan camera.

6. The method of claim 5 in which the camera operates at a speed of at least about 50,000 Hz.
7. The method of claim 6 in which pixels are generated in forming the image.
8. The method of claim 7 in which the web comprises a water content of at least about 80% water during the reflecting step.
9. The method of claim 8 in which the web comprises a water content of between about 80% to about 95%.
10. The method of claim 2 in which the wet web moves at a speed of at least about 4000 feet/minute.
11. The method of claim 10 in which the forming fabric is black in color.
12. A method for measuring paper formation in real time on a papermaking process, comprising:
 - (a) providing a rotating forming fabric having an upper and lower surface;
 - (b) depositing a paper slurry upon the upper surface of the forming fabric to establish a wet paper web, the wet paper web moving at a speed of at least about 4000 feet per minute;
 - (c) transmitting light from a light source upon the upper surface of the wet paper web;
 - (d) reflecting light from the upper surface of the wet paper web to a camera thereby forming a pattern of reflected light;
 - (e) forming a visual image of the wet paper web corresponding to the pattern of

the reflected light; and

(f) utilizing the pattern of reflected light to which the visual image corresponds to measure paper formation in the wet web.

13. The method of claim 12 in which the image is displayed upon a computer monitor.

14. The method of claim 12 in which the camera sends to a computer signals representing light received by the camera, further wherein the computer comprises a processor, whereby the processor of the computer compares said signals with predetermined stored values to determine the degree of deviation of the formation of the paper web from desired paper web formation values.

15. The method of claim 14 in which the processor is configured to adjust one or more papermaking parameters in real time to alter the characteristics of the wet web to cause the wet paper web to conform to desired paper web formation values.

16. The method of claim 15 in which the papermaking parameters comprise the group consisting of:

- a) paper uniformity,
- b) sheet water content,
- c) stock impingement angle,
- d) vacuum box position, and
- e) forming fabric tension.

17. The method of claim 12 in which the wet web forms a paper having a weight of

less than about 16 lbs/2880 ft².

18. The method of claim 12 in which the camera is a line scan camera, and the image formed is constructed by scanning lines of the image.

19. The method of claim 12 in which the light is transmitted from a light source upon the surface of the wet paper web at an impingement angle of between about 25 and 65 degrees.

20. The method of claim 12 in which more than one light source is employed to transmit light.

21. The method of claim 12 in which a vacuum box is employed to take water from the wet web while the wet web is moving along the surface of the rotating forming fabric.

22. The method of claim 12 in which light from the light source travels through at least one focusing lens before impinging upon the surface of the wet web.

23. The method of claim 1, wherein the forming fabric has a dark color.

24. The method of claim 12, wherein the forming fabric has a dark color.

25. The method of claim 12, wherein the forming fabric comprises a black color.

26. A method of measuring formation or distribution in a web forming process comprising the steps of:

providing a forming fabric;

depositing a slurry of fibers upon the forming fabric to form a wet web;

emitting light from a light source upon a first side of the wet web;

detecting reflected light from the wet web by a camera positioned in communication with the first side of the web, the camera forming a pattern of reflected light;

forming a visual image of the wet web corresponding to the pattern of the reflected light; and

based upon the formed visual image, adjusting one or more web making parameters in order to improve the web formation.

27. A method as defined in claim 26, wherein the web making parameter comprises machine speed, fiber furnish blend, stock freeness, basis weight, stock impingement angle, vacuum box position, or forming fabric tension.